

Test of LLD Electrodes for SOL Control

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Goals: Actively modify SOL width using LLD electrode bias

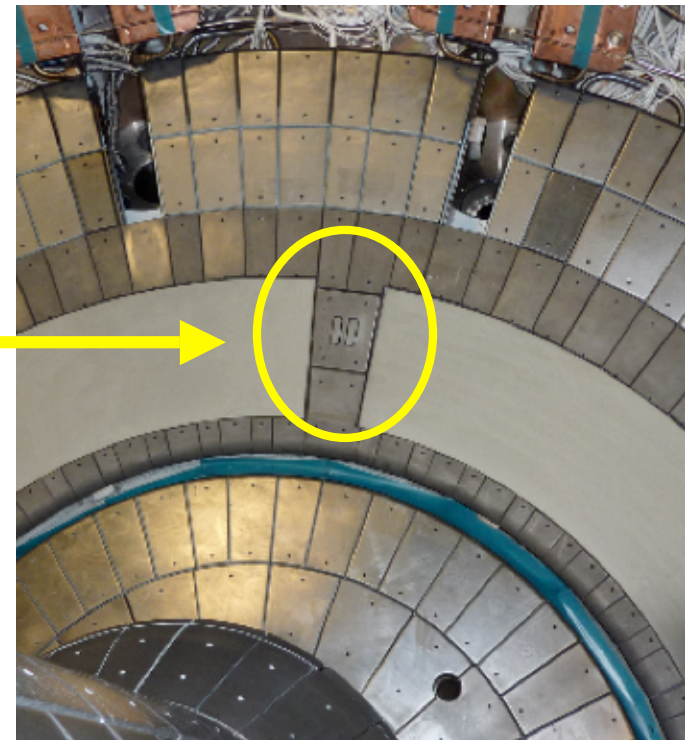
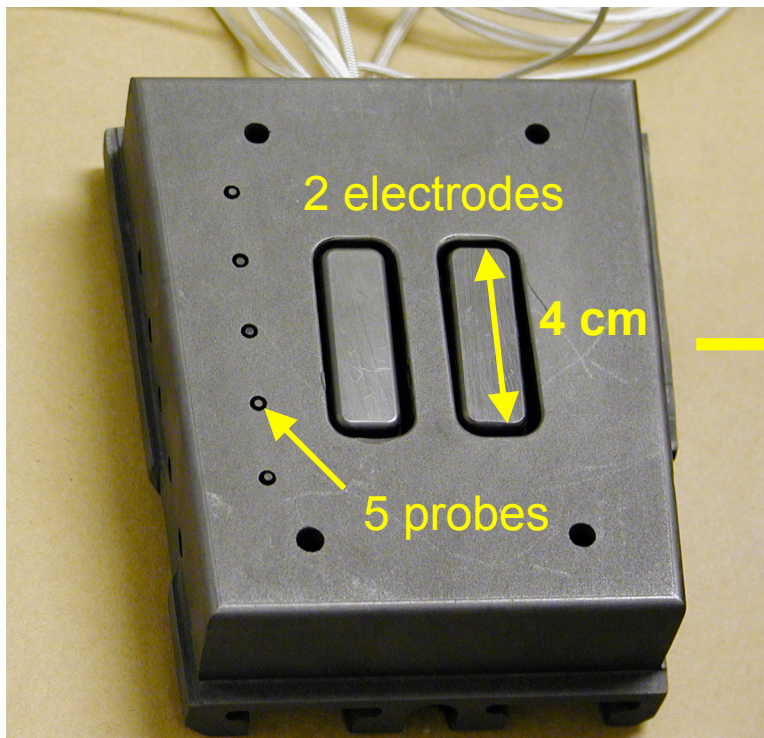
Passively monitor SOL plasma and SOL currents

Run time: ~ 1/2 day (20 shots) + piggybacks where possible

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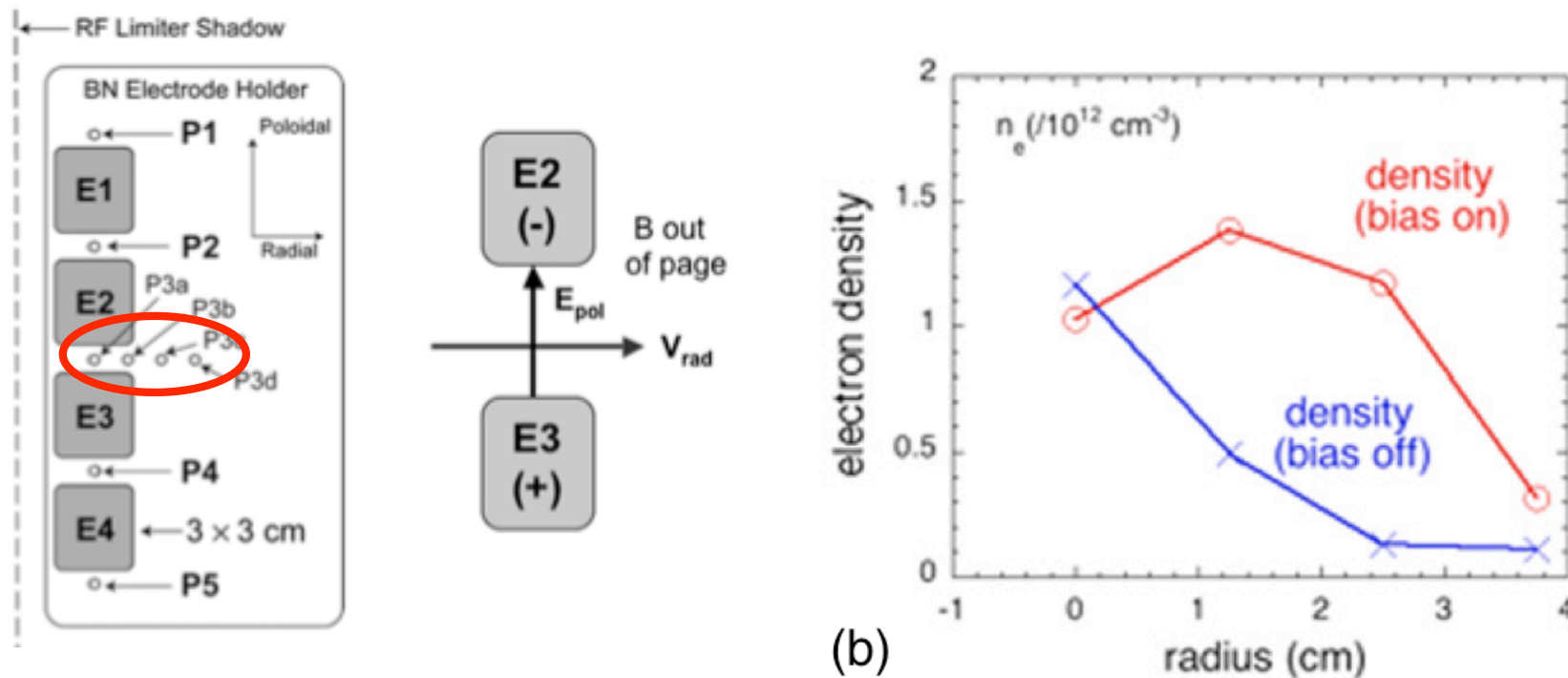
LLD Biased Electrodes and Probes

- 2 electrodes and 5 probes @ Bay E, and also at Bay K
- Electrode bias ± 100 V (-30 A, +10 A) on two electrodes



Results From Midplane Electrodes

- Biasing significantly affects local density near electrodes



S.Zweben, R.J. Maqueda, L. Roquemore et al, PPCF 105012 (2009)

Biased Electrodes Experiments

- Routinely monitor 5 divertor probes (swept or floating)
- Routinely monitor electrode currents (while grounded)
- Routinely view electrodes with LLD cameras (e.g. in IR)

Biasing of electrodes in far-SOL (~ 10 high- δ discharges)

- apply ± 90 volts to one pair of electrodes for ~ 200 msec
- look for changes in probes and local heating of LLD tile
- adjust field line mapping to look for changes @ midplane

Biasing of electrodes in near-SOL (~ 10 low- δ discharges)

- repeat above, looking out for overheating of electrodes